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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/594,467	06/14/2000	Siavash Alamouti	1999-0342 (STG168)	7464

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EXAMINER

HO, DUC CHI

ART UNIT	PAPER NUMBER
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2665

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Leeburg

Office Action Summary

Application No.

09/594,467

Applicant(s)

ALAMOUTI ET AL.

Examiner

Duc C Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12, 13, 15-18, 20, 21, 23, 24 and 26-29 is/are rejected.
- 7) ☒ Claim(s) 11, 14, 19, 22, 25 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 6, 7, 10. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10, 12-13, 15-18, 20-21, 23-24, 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Fattouche et al.(US 5,282,222-in record), hereinafter referred as Fattouche.

Regarding claim 1, Fattouche discloses a method and apparatus for multiple access between transceivers in wireless communications using OFDM spread spectrum. The wireless system comprises:

a wireless base unit (a base station fig. 5b);
a plurality of fixed wireless remote units (a plurality of portable receivers fig. 5c);
a plurality of wireless voice traffic channels available between the wireless base unit and the plurality of fixed wireless remote units (see column 7, lines 28-33, fig. 2);
a plurality of wireless data traffic channels available between the wireless base unit and the plurality of fixed wireless remote units (see column 7, lines 28-46, and column 17, lines 50-61, fig. 2, fig.13a);

each wireless traffic channel being identifiable by a unique combination of frequency and time slots (see column 8, lines 13-20);

each wireless data traffic channel for carrying high speed data in addressed data packets to and from the plurality of fixed wireless remote units (see column 7-line 68 to column 8-line 4);

each wireless voice traffic channel being assignable to a voice communication call involving one of the plurality of fixed wireless remote units for carrying voice data of the voice communication call (see column 7, lines 28-33).

Regarding claim 2, the VCs (voice channels) are dedicate for voice, see column 7, lines 32-38.

Regarding claim 3, the voice channels is deassignable during a call, see column 8-line 25, fig. 5b.

Regarding claim 4, Fattouche discloses data in each unique combination of frequency and time slots comprises a plurality of modulated carriers, see column 8, lines 13-20.

Regarding claim 5, Fattouche discloses a method for use in communicating data in a wireless communication system utilizing OFDM, the method comprises:

providing a plurality of wireless data traffic channels for carrying high speed data in address data packets, each wireless data traffic channel being identifiable by a unique combination of frequency and time slots (Fig. 2, column 8, lines 14-20);

providing a plurality of wireless voice traffic channels for carrying voice data, each wireless voice traffic channels being identifiable by a unique combination of

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frequency and time slots, each wireless voice traffic channel being assignable to a voice communication call for carrying voice data of the voice communication call (column 7, lines 28-33).

Regarding claim 6, Fattouche discloses the plurality of wireless voice traffic channels further comprises providing wireless traffic channels that are dedicated to carry voice data of a voice communication call upon being assigned, see column 7, lines 32-38.

Regarding claim 7, the voice channels is deassignable during a call, see column 8-line 25, fig. 5b.

Regarding claim 8, Fattouche discloses providing a plurality of wireless voice and data traffic channels involving providing traffic channels that carry data on a plurality of modulated carriers for each unique combination of frequency and time slot in use, see column 8, lines 13-20.

Regarding claim 9, Fattouche discloses a method and apparatus for multiple access between transceivers in wireless communications using OFDM spread spectrum, the method comprises:

receiving radio frequency (RF) OFDM communication signals over a voice traffic channel that is dedicated to a voice communication call, the voice traffic channel identifiable by a unique frequency/time slot combination (see column 8, lines 14-20, and column 8, lines 52-62);

downconverting the RF OFDM communication signals for producing downconverted OFDM communication signals (Fig. 5b, see column 9, lines 34-36);

sampling the downconverted OFDM communication signals for producing downconverted OFDM communication signal sample (see column 9, lines 40-41);

for each frequency/time slot combination associated with voice traffic channel:
applying a Fast Fourier Transform (FFT) to the OFDM communication
signal samples for producing a plurality of modulated tones (column 10, lines 25-27);
demodulating the plurality of modulated tones for producing voice data of
the voice communication call (Fig. 7a and 7b, column 9-line 47 to column 10-line 6).

Regarding claim 10, Fattouche discloses further comprising:

receiving RF OFDM communication signals over a data traffic channel, the
data traffic channel identifiable by a unique frequency/time slot combination (column 8,
lines 14-20, and lines 50-62);

for each frequency/time slot combination associated with the data traffic
channel:

applying an FFT to the OFDM communication signal samples for producing a
plurality of modulated tones (column 10, lines 25-27); and
demodulating the plurality of modulated tones for producing high speed data in
addressed data packets (Fig. 7a and 7b, column 9-line 47 to column 10-line 6).

Regarding claim 12, Fattouche discloses demodulating the tones comprises
producing encoded and compressed data, see column 17, lines 52-56.

Regarding claim 13, Fattouche further discloses

decoding the encoded and compressed data for producing compressed
data (see column 18, lines 6-7);

decompressing the compressed data for producing the voice data of the
voice communication call (column 18, lines 1-7).

Regarding claim 15, Fattouche discloses a method and apparatus for multiple
access between transceivers in wireless communications using OFDM spread
spectrum, the method comprises:

for each frequency/time slot combination associated with voice traffic channel:
modulating a plurality of tones with voice data of a voice communication call that is assigned to the voice traffic channel (column 8, lines 13-20);
applying an Inverse Fast Fourier Transform (IFFT) to the plurality of modulated tones for producing OFDM communication signal samples (column 10, lines 25-27);
converting the OFDM communication signal samples to OFDM communication signals (column 9, lines 40-41);
upconverting the OFDM communication signals for producing the RF OFDM communication signals (column 17, lines 59-60); and
transmitting the RF OFDM communication signals over the voice traffic channel (column 17, lines 60-61).

Regarding claim 16, Fattouche further discloses:

for each frequency/time slot combination associated with a data traffic channel:
modulating a plurality of tones with high speed data in addressed data packets (column 8, lines 13-22);
applying an IFFT to the plurality of tones for producing OFDM communication signal samples (column 10, lines 25-27);
converting the OFDM communication signal samples to OFDM communication signals (column 9, lines 40-41);
upconverting the OFDM communication signals for producing RF OFDM communication signals (column 17, lines 59-60);
transmitting the RF OFDM communication signals over the data traffic channel (column 17, lines 60-61).

Regarding claim 17, Fattouche further discloses modulating a plurality of tones comprises modulating a phase and amplitude of each one of the plurality of modulated tones, see column 7, lines 19-27.

Regarding claim 18, Fattouche further discloses:

compressing the voice data for producing compressed voice data (see column 17, lines 52-56);

prior to compressing, encoding the compressed voice data for producing encoded and compressed voice data (column 17, lines 52-56); and

wherein modulating the plurality of tones comprises modulating a phase and amplitude of each one of the plurality of modulated tones with the encoded and compress voice data (column 7, lines 19-27).

Regarding claims 20-21, and 23-24, these claims have similar limitations as claims 9-10, and 12-13, respectively. Therefore, they are rejected under Fattouche for the same reasons set forth in the rejection of claims 9-10, and 12-13.

Regarding claim 26, Fattouche discloses a method and apparatus for multiple access between transceivers in wireless communications using OFDM spread spectrum, in which the apparatus having a transmitter comprises:

a modulator, said modulator operative to modulate a plurality of tones with voice data of a voice communication call for each frequency/time slot combination associated with a voice traffic channel that is assigned to the voice communication call (Fig. 5a, column 9, lines 26-33);

an IFFT processor, said IFFT processor operative to apply an IFFT to the plurality of modulated tones for each frequency/time slot combination associated with the voice traffic channel for producing OFDM communication signal samples (Fig 6a, column 10, lines 25-27);

a digital-to-analog converter, said DAC operative to convert the OFDM communication signal samples into OFDM communication signals (Fig. 5b, column 9, lines 34-36);

a radio frequency (RF) upconverter, said RF upconverter operative to upconvert the OFDM communication signals for producing RF OFDM communication signals (column 17, lines 59-60); and

a transmitter front end, said transmitter front end operative to transmit the RF OFDM communication signals over the voice traffic channel (column 17, lines 60-61).

Regarding claim 27, Fattouche discloses:

Said modulator being further operative to modulate a plurality of tones with high speed data for each frequency/time slot combination associated with a data traffic channel, the high speed data being carried in addressed data packets (fig. 5a, column 9, lines 26-33);

Said IFFT processor being further operative to apply the IFFT to the plurality of modulated tones for each frequency/time slot combination associated with the data traffic channel for producing OFDM communication signals (fig. 6, column 10, lines 25-27); and

Said transmitter front end being further operative to transmit the RF OFDM communication signal over the data traffic channel (column 17, lines 60-61).

Regarding claim 28, Fattouche further discloses the modulator comprising a phase and amplitude modulator, see column 17, lines 19-27 .

Regarding claim 29, Fattouche further discloses:

a vocode, said vocoder operative to compress the voice data for producing compressed voice data (Fig. 5a, column 9, lines 24-26);

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a block encoder, said block encoder operative to encode the compressed voice data for producing encoded and compressed voice data (fig. 5a, column 9, lines 26-28); and

said operator being further operative to modulate a phase and amplitude of each one of the plurality of tones with encoded and compressed voice data (column 7, lines 19-27).

Allowable Subject Matter

3. Claim 11, 14, 19, 22, 25, and 30 are objected to as being independent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Malkamaki et al. (US 6,385,190) ; Andrews et al. (US 6,496,490)) are cited to show methods and apparatus for use in communicating voice and high speed data in a wireless communication system, which is considered pertinent to the claimed invention.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Ho whose telephone number is (703) 305-1332. The examiner can normally be reached on Monday through Friday from 7:00 am to 3:30 pm.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (703) 308-6602.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4750

6. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703)- 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington. VA, Sixth Floor (Receptionist).

Patent Examiner



Duc Ho

12-12-03